



Federal Air Surgeon's Medical Bulletin



Vol. 43, No. 1
2005-1

Aviation Safety Through Aerospace Medicine
For FAA Aviation Medical Examiners, Office of Aerospace Medicine Personnel,
Flight Standards Inspectors, and Other Aviation Professionals.

U.S. Department of Transportation
Federal Aviation Administration

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DOT SECRETARY'S PRESS CONFERENCE ON LASERS HELD AT CAMI. U.S. Secretary of Transportation Norman Y. Mineta (insert) described new federal regulations aimed to prevent incidents of cockpit illumination by lasers (story on page 13).

QUICK FIX

AME Specialty Code Enhancement

By Richard 'Dick' Jones, MD

Problem: A long-standing complaint of many of our Aviation Medical Examiners (AMEs) has been that their particular medical specialty was not included in our list of specialty codes. Our original AME Program computer application had only a single space for this code and, since the decision was made to use numerals, we could have ten codes, numbered 0 through 9 (the numeral following the dash that was placed after each AME number in the past). Recently, we massively overhauled our AME Program application. It now permits an unlimited number of specialties that we will initially code using

two data fields populated by letters of the alphabet.

Result: We have chosen to disassociate specialty codes from AME numbers – this is causing some confusion as AMEs no longer find the dash and numeral following their AME numbers on their annually renewed AME designation cards and other correspondence from us. Our alphabet codes are now found on some documents, causing further confusion. Furthermore, as we attempted to transition from one system to another, we found that we could not always trust that the specialty we had

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ROBERT S. POOLE, MD
AVIATION'S CHAMPION

You will find elsewhere in this issue of the *Bulletin* the obituary for Dr. **Robert S. Poole**, a long-time physician employee of the Office of Aerospace Medicine and a person many of you know as a friend of aviation and a strong advocate for airmen. Considering my long-time reliance on Bob's wise counsel and strong friendship, I would be remiss in not saying a few words about his importance to the Office of Aerospace Medicine.

I first became acquainted with Bob when he was in the general practice of medicine in the Washington, D.C., area serving as an aviation medical examiner and part-time consultant to the Federal Air Surgeon. Bob was described to me as a well respected and competent physician, a highly qualified pilot, and someone you could rely upon for his common sense

The Federal Air Surgeon's Column



By Jon L. Jordan, MD, JD

and wise advice. As I got to know Bob over the course of many years, I learned that all of this was true.

To say that Bob was a friend of airmen is something of an understatement. As a pilot, Bob knew the environment in which pilots function, and he could accurately assess the safety risks of allowing those who had medical problems to operate in that environment. He also could relate to the concerns and emotions that airmen have over the loss or the threatened loss of their privilege to fly. Because of this, he was able to effectively communicate with airmen when the news of their certification was not favorable.

Bob's highest priority was the safety of the aviation system. At the same time, however, in matters related to medical certification decision-making, he had a strong sense of the need to apply not only sound medical principles, but fairness to airmen as well.

In addition to experience and expertise that covered a broad range of subjects, Bob brought to the Office of Aerospace Medicine a keen sense of humor that made working with him a pleasure. He could make unwelcome tasks much easier, and it seemed that he could find humor in almost any situation. On many occasions, his ability to engender humor even extended to airmen to whom he had to deliver "bad" news.

Almost everyone who knew Bob has a story related to his ability to turn a difficult and contentious situation into a positive experience. In this respect, I am reminded of a situation involving an airman who had a history of a

significant medical condition that the airman refused to accept. The airman had been hospitalized with a diagnosis of a myocardial infarction, but he wished to be medically certified without providing the information necessary for making a favorable decision.

The airman was abusive and demanding in dealing with our certification folks in Oklahoma City. As a matter of due course, the case was referred to the Washington office for possible resolution. Bob was asked to review the case and his review confirmed the need for the medical information. This led the airman to become abusive with Bob and the rest of our Washington staff.

After spending countless hours trying to reason with the airman, I received a call from a high-ranking agency official who was known to be skeptical of our fairness in the treatment of airmen. This official had been contacted by the airman and was convinced that there was no cardiac condition and that the airman should be certified without further delay. Along with Bob, I was summoned to the official's office to explain our actions. Knowing Bob and the official's reputed limited sense of humor, I cautioned Bob to stick to the facts and avoid making light of the situation.

After my introduction of the case, Bob proceeded to brief the stern-faced official on the details, but he was interrupted in midstream. The official looked at Bob and questioned gruffly, "Doctor, do you mean to tell me that this man is suffering from heart disease?" Bob paused, looked innocently at the official, and exclaimed, "Oh no sir, this man *has* heart disease—we're suffering from it!" With a great deal of apprehension, I looked for the reaction from the official. Fortunately, a slight smile appeared on his lips. He thanked us for the information and sent us on our way.

Together with the loss of his wide range of knowledge, experience, and sense of fairness, incidents like this make me miss Bob greatly. It's not likely that we'll find another person who can come close to taking his place.

Safe journey, Bob, you served the Office of Aerospace Medicine and the American people quite well.

—JLJ

**Federal Air Surgeon's
Medical Bulletin**

Library of Congress ISSN 1545-1518

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The Federal Air Surgeon's Medical Bulletin is published quarterly for aviation medical examiners and others interested in aviation safety and aviation medicine. The Bulletin is prepared by the FAA's Civil Aerospace Medical Institute, with policy guidance and support from the Office of Aerospace Medicine. An Internet on-line version of the Bulletin is available at: <http://www.cami.jccbi.gov/AAM-400A/fasmb.html>

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QUICK FIX

Leaving AME Seminars Early – Don't Do It!

By Richard 'Dick' Jones, MD

Problem

WE HAVE A RECURRING problem with AMEs scheduling flights to leave seminars too early for them to complete the seminar. Typically, they just drop their course documents on our desk and leave. This occurs despite our sending two written warnings during the seminar scheduling process not to schedule flights requiring them to leave seminars before noon on the last day.

Result

Leaving seminars early causes problems for the Education Division, the Regional Flight Surgeons (RFSs), and the AME. The Education Division cannot grant Continuing Medical Education (CME) credit for hours of training not attended. The final hours of the seminar are often the most critical, consisting of Aerospace Medical Certification Division and performance-reporting topics that we feel you all must hear to have been considered to have completed the seminar. Some AMEs are upset with us when they subsequently do not receive credit for completion of a seminar or don't get the hours of CME they expected. Often, they have compounded their problems by stating in their course documents that they attended sessions they did not attend – this is called “lying” and is a falsification of a document! Termination of the AME designation is likely in this circumstance.

Solution

We understand the burden it places on some AMEs to attend seminars far from home and that getting back home at a decent time can sometimes be problematic. We schedule seminars all around the country precisely because we

want to minimize these inconveniences. The seminars all end by noon, so that you can schedule flights home at reasonable times. It is your responsibility to plan ahead and pick seminar locations that permit you to attend the entire offering. Please do not try to make it our problem when your training is overdue and you have few choices left, or when you intentionally pick a seminar for personal reasons that do not permit you to get home early.

Your RFS will be happy to assist you in coordinating with our office if you have special needs, such as religious constraints on attendance, and the

Education Division can help with special arrangements for special circumstances, but we cannot do this if you do not coordinate in advance with us. Please do not assume you can ignore our advice about scheduling return flights and expect us to cheat when granting CME. Giving full seminar credit for partial attendance implies we do not consider the portion missed to be important. We do not want to make this implication, so please plan accordingly.



Dr. Jones manages the Civil Aerospace Medical Institute's Aerospace Medical Education Division.

Aviation Medical Examiner Seminar Schedule

2005

March 14-18-----Oklahoma City, Okla. ----- Basic (1)
May 9 - 12 -----Kansas City, Mo. (AsMA) -----OOE (3)
June 13 - 17-----Oklahoma City, Okla. ----- Basic (1)
July 15 - 17 -----Bellevue, Wash. -----N/NP/P (2)
August 5 - 7-----Boston, Mass.-----Cardio (2)
September 12 - 16---Oklahoma City, Okla. ----- Basic (1)
November 18 - 20---Savannah, Ga. ----- AP/HF (2)
December 5 - 9 -----Oklahoma City, Okla. ----- Basic (1)

CODES

AP/HF Aviation Physiology/Human Factors Theme

CAR Cardiology Theme

OOE Ophthalmology - Otolaryngology - Endocrinology Theme

N/NP/P Neurology/Neuro-Psychology/Psychiatry Theme

(1) A 4½-day basic AME seminar focused on preparing physicians to be designated as aviation medical examiners. Call your regional flight surgeon.

(2) A 2½-day theme AME seminar consisting of 12 hours of aviation medical examiner-specific subjects plus 8 hours of subjects related to a designated theme. Registration must be made through the Oklahoma City AME Programs staff, (405) 954-4830, or -4258.

(3) A 3½-day theme AME seminar held in conjunction with the Aerospace Medical Association (AsMA). Registration must be made through AsMA at (703) 739-2240. A registration fee will be charged by AsMA to cover their overhead costs (NONE OF THIS FEE GOES TO THE FAA). Registrants have full access to the AsMA meeting; however, it is mandatory of all attendees to attend the first FAA session for instruction on the requirements for seminar credits. CME credit for the FAA seminar is free.

The Civil Aerospace Medical Institute is accredited by the Accreditation Council for Continuing Medical Education to sponsor continuing medical education for physicians.

Pre-Diabetes

Case Report, by Major Douglas Files, MD, MPH

Abstract

Pre-diabetes is the situation of having chronically high blood sugars but not meeting diagnostic criteria for diabetes. Many steps can be taken to delay or prevent the onset of diabetes in people with this condition. In general, the aviation medical examiner (AME) can issue a certificate to these airmen, but HbA1c readings greater than 6.0 should prompt further workup. The use of medications for pre-diabetes (such as metformin or acarbose) will require the submission of clinical information to the Aerospace Medical Certification Division (AMCD).

History

A 47-year-old male student pilot with 10 hours of flight time presented for consideration of an initial class III medical certificate on 02/14/03. The aviation medical examiner (AME) deferred his application to the AMCD for further evaluation. He noted in block 60 of form 8500-8 that the airman had never been diagnosed with diabetes, but his family practitioner had placed him on a diet and exercise protocol for “metabolic syndrome.”

Social and family history. The airman denied any tobacco or illicit drug use and had no family history of diabetes. He drank two to four beers per week.

Physical exam. The airman was obese but healthy appearing, with a height of 69 inches and weight of 270 lbs. A retinal exam was normal, without hemorrhages or macular edema. Cardiopulmonary and abdominal exams were within normal limits. All four extremities showed normal capillary refill and solid +2 pulses. On neurological examination the airman had normal light touch and pinprick sensation in all extremities. Muscular strength and reflexes were normal and symmetric in all extremities.

Major (Dr.) Douglas Files is a resident in aerospace medicine at the USAF School of Aerospace Medicine, Brooks City-Base, Texas. He wrote this case report while on rotation at the Civil Aerospace Medical Institute.

Laboratory studies. A fasting blood glucose of 114 and a HbA1c of 8.8 were submitted to the AMCD.

Discussion

Diabetes mellitus is defined by the American Diabetes Association (ADA) as a fasting blood sugar \geq to 126mg/dl or by an oral glucose tolerance test with \geq to 200mg/dl at the 2-hour mark. The Federal Air Surgeon has determined that the ADA definition also holds for aeromedical purposes. It should be noted that although it is commonly used, no study has specifically examined the ability of the hemoglobin A1c (HbA1c) test to predict future diabetes.¹ It has only been validated for following existing disease.²

This airman, then, would not have diabetes since his fasting blood sugar was only 114, and his HbA1c is less than 9. However, he cannot be characterized as entirely normal either. “Pre-diabetes” is the term that the ADA now uses to describe a condition of high blood sugar levels that do not meet the criteria for diabetes. This pre-diabetes condition exists if a person’s fasting blood sugar is 100-125, or an oral glucose tolerance test is 140-199mg/dl at the 2-hour mark.³ In the past, various terms have been used to describe the pre-diabetic state such as *insulin resistance*, *impaired glucose tolerance*, as well as *metabolic syndrome*, which also implies obesity, hypertension, and lipid abnormalities.⁴

Aeromedical disposition. Diabetes mellitus requiring insulin or an oral

Pre-Diabetes

Before people develop type-2 diabetes, they almost always have pre-diabetes. The ADA estimates that more than one of every five Americans ages 40-74 has pre-diabetes. Moreover, several studies have shown that people with pre-diabetes can take positive action to delay or prevent the development of frank diabetes mellitus. Dietary changes and exercise require substantial effort, but even modest changes (e.g., losing 10 lbs.) can delay disease onset.³ In addition, separate studies have demonstrated that metformin, acarbose, and troglitazone can all delay progression to type-2 diabetes.⁵ These drugs are less effective in preventing diabetes in pre-diabetes patients than are dietary changes and exercise, but they do work. Troglitazone (Rezulin) was removed from the market due to hepatic side effects, but the other two medications remain available. Acarbose (Precose) slows down digestion of carbohydrates in the intestine thereby mitigating postprandial increases in blood glucose. Metformin (Glucophage) helps the body to better utilize whatever insulin is available by increasing cellular sensitivity to it in the liver.^{6,7} Note that rosiglitazone (Avandia) can cause hypoglycemia in non-diabetics so it should be avoided for pre-diabetes.⁸

hypoglycemic medication is disqualifying for all three classes of airman medical certificates (14 CFR 67.113(a), 14 CFR 67.213(a), 14 CFR 67.313(a)). The Federal Air Surgeon requires AMEs to defer certification to the AMCD in cases in which airmen meet the criteria for diabetes and takes insulin or an oral hypoglycemic agent for it.

Diabetes controlled with diet and

Continued on page 6



Certification Update

Information About Current Issues

By Warren S. Silberman, DO, MPH

Questions and Answers

1 An airman applicant for 1st-class certification presents to AMCD with a history of chronic myelogenous leukemia. He had been treated for one year and his blood counts are now stable. The hemoglobin, white blood cell count, and platelet counts are all within normal range for medical certification purposes. He was Philadelphia Chromosome positive, but recent bone marrow aspiration demonstrated no evidence of the chromosome abnormality. He has no side effects from the medication Gleevec (Imatinib mesylate) that he is taking orally for the blood malignancy. How should the AME handle this application?

Answer. Complete the examination, and defer the medical certificate to the AMCD or your Regional Medical Office for final determination. As I have reminded you, consider the medical condition first. In general, the FAA does not grant medical certification to airmen with acute leukemia. We do grant medical certification with special issuances to airmen with chronic lymphocytic leukemia and have granted issuances to airmen with chronic myelogenous on this medication. Our experience has been good with airmen reporting no significant side effects from the medication.

Gleevec (or as it was known when it was investigational ST1571)

was approved by the FDA in May 2001 and accepted by the FAA May 2002. Imatinib is the chemical name of this medication. It is used in Philadelphia Chromosome positive chronic myelogenous leukemia in the chronic phase. The drug inhibits proliferation and induces apoptosis on Bcr-Abl-positive cell lines as well as fresh leukemia cells. It also inhibits the receptor tyrosine kinases for platelet-derived growth factor (PDGF) and stem cell factor (SCF) and inhibits PDGF- and SCF- mediated cellular events. The major adverse events with Gleevec are fluid retention, nausea, muscle cramps, musculoskeletal pain, rash, fatigue, diarrhea, headache, joint pain, abdominal pain, myalgia, nasopharyngitis, and hemorrhage, but as I mentioned, those that we have allowed to fly using Gleevec have done well.

We require the airman to provide the AMCD with a current status report and complete blood count every 6 months (regardless of class) when we grant certification.

2 John E. Hoover presented to his AME for an initial 2nd-class examination. His examination was unremarkable—except for a reported history of marijuana use. When questioned, Mr. Hoover related that he worked for a high-level government group that requires him to use illegal drugs. He told the AME that he could not say what he does or where he works. What would you do in such a situation?

Answer. The AME contacted the AMCD's DUI Section. It was properly decided that the AME would defer issuance to us. When this story was related to me, I told our people to deny the airman for the illegal drug use.

When the AME went back and told Mr. Hoover that he was going to defer, the airman threatened legal action, but the AME held fast and did the right thing! When an airman gives an AME their medical history, they must be completely forthright. You would think that someone could come up with a more believable story of his drug use!

3 Fester Adams is a Vietnam veteran and was military pilot for 30 years. He presented to his AME for a 3rd-class FAA medical examination after a 10-year hiatus from flying. On examination, he related a history of hypertension, diet-controlled diabetes mellitus, and deep venous thrombosis (currently on Coumadin). On physical examination, he was 70" and 260 lbs. His blood pressure was 170/99. The airman provided an ECG—and nothing else! His AME did the proper thing and deferred medical certification to the AMCD. We asked the airman to provide the standard initial blood pressure material, a hemoglobin A1C level, medical records, status report for the DVT, and the past six-months of INR (International Normalized Ratio) levels. The airman provided the following status reports and medical tests:

- INR levels (from old to current): 1.8, 2.0, 2.4, 1.2, 1.9, and 2.2
- HgA1C level 5.4
- Blood pressure averaging 120-136/80-86
- History of PTSD (post traumatic stress disorder), hyperuricemia, sleep apnea on CPAP, and gastric bypass procedure March 2003
- Among the many medications mentioned were diphenhydramine 50mg., taken at bedtime, and divalproex.

Should we certify this airman?

Dr. Silberman manages the Civil Aerospace Medical Institute's Aerospace Medical Certification Division.

Continued ➤

Answer. This is a perfect example of why we hound airmen to provide us with all their medical information. What should have been a simple hypertension evaluation ended up being something much more. We never knew of the PTSD, sleep apnea, or the gastric bypass procedure. Diphenhydramine (Benadryl, an over-the-counter sedating antihistamine) is not acceptable for medical certification, nor is divalproex (the trade name for Depakote), which we assume he is taking for the PTSD. Needless to say, we have denied the airman for the medical condition of PTSD and use of the unacceptable medications diphenhydramine and divalproex.

4 Migel Jackson is a 54-year-old airline pilot for a U.S. carrier and part time singer/dancer with a diagnosis of Parkinson's disease. He symptoms consisted of tremors of the left upper extremity. On physical examination, he had a "stone-like face" and some rigidity of the left upper extremity. He also had a mild tremor of that extremity as well. There were no problems with his gait. Migel's speech was normal and, since he was right-handed, he had no difficulty with handwriting. He was initially given Sinemet (levodopa and carbidopa), but when he was maxed out on the dose of this medication he was started on the medication pramipexole (Mirapex). As a super AME, what should you do?

Answer. You need to be sure that you have the authority to issue first-class medical certificates. Obviously, you need to consider the medical condition first. AMCD does grant medical certification to airmen with mild Parkinson's disease. He appears to not have any signs/symptoms that may contraindicate piloting. The issue here is the treatment. The AMCD does not allow the use of the medication pramipexole, which is similar to dopamine. It is used for

treatment of Parkinsonism. It has side effects (dizziness, somnolence, insomnia, and hallucinations) that are not compatible with flying. People who have taken this medication have experienced sudden falling asleep even after they have been on the drug over 1 year. This falling asleep has occurred without warning while driving an automobile and has resulted in accidents. So, Mr. Jackson will not be flying on that medication.

5 A 71-year-old airman with a history of angina pectoris and coronary artery disease with multiple percutaneous angioplasties and stents, presents to the AMCD for his initial medical certification for these conditions. He is sent out an information request asking for the standard medical information and testing. He provides the history and physical examinations that predated the procedures, the heart catheterization and stent reports, a current cardiovascular evaluation, lipid panel, fasting blood sugar, and a pharmacologic nuclear stress test. The applicant was denied certification. Do you know why?

Answer. The AMCD specifically requests a maximal Bruce stress test off beta-blockers, calcium channel agents, and digoxin (with the concurrence of the treating physician). This airman provided a pharmacologic stress test, which is not as sensitive for demonstrating ischemia as a maximal exercise test. If the airman is physically capable of performing the exercise test, this is the type we desire. In most cases, the airman may have a pharmacologic stress test, and we are not informed of the reason. If the airman has some sort of physical limitation that prevents him from taking the exercise test and we receive a valid explanation, then we will accept the pharmacologic test (and will require this type of test yearly, unless the physical limitation is temporary). However, if the airman's physician believes that the prescribed beta-blocker cannot be withheld for 48 hours prior to stress testing, we will not grant medical certification.



PRE-DIABETES from page 4

exercise and pre-diabetes are not specifically disqualifying; however, they are covered under the accompanying blanket statement that no medical certificate may be issued to an airman with a disorder that makes the person unable to safely perform aviation duties (14 CFR 67.113(b), 14 CFR 67.213(b), 14 CFR 67.313(b)). In this case, the online *AME Guide* requires that AMEs submit a current status stating that there is "no evidence of associated disqualifying cardiovascular, neurological, renal, or ophthalmological disease." It also notes that specialized examinations need not be performed unless indicated by history or clinical findings.² (Note: The online *AME Guide* may be found by typing the terms "Aviation Medical Examiner Guide" into any computer search engine.) Thus, AMEs may issue medical certificates to airmen with pre-diabetes who are not on medication as long as their labs are within FAA standards. The same is true, of course, regarding diet-controlled diabetes mellitus. If one or more medications are used, however, the information listed in the table below should be submitted to the AMCD.

This guidance holds for airmen on oral hypoglycemic agents for insulin resistance, metabolic syndrome, or pre-diabetes. It builds on the policy published in the winter 2004 issue of the *Bulletin* [*FASMB*, Vol. 41, No.4, Table 1, p. 5], noting that metformin off-label use for weight loss is unacceptable, but its use for insulin resistance is lower-risk and allowed.⁹ Airmen will be expected to demonstrate that they do not have diabetes. They will accomplish this by providing two fasting blood sugars taken at least 24 hours apart and an HbA1c prior to treatment. If an airman has already begun treatment, he/she will stop therapy for 30 days and then have the blood tests performed. The table below summarizes current FAA policy for this condition.

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Dear Editor,

I have been watching to see how the new medical rules for Sport Pilots would play out and read the article in the last Medical Bulletin—an excellent publication—with interest and concern. I have to say that I am not a fan of the new rules and expressed my reasons during the proposed rules change period: mainly the use of a driver's license as "certification." Witness the 9/11 hijackers with "valid" driver's licenses and the fact that in some states licenses can be renewed by phone. But I digress.

I am somewhat confused and frustrated by the situation in which an applicant with life-long, chronic medical conditions can rely on his private physician to determine whether his medical deficiency would interfere with the safe performance of sport piloting duties. An example is Dr. Silberman's case presentation in the same issue in which Dr. Feelgood's impression that the applicant was "good enough to fly" was not correct.

It seems incongruous that we AMEs who work hard to be sure our pilots are certified and safe according to the rules could have them sharing the landing pattern with someone who may not meet the visual standards or who may be having chest pain because of a complication of his underlying, unreported vascular disease.

I think it would be a better plan to at least require an initial FAA medical evaluation and have applicants with chronic problems followed through AMCD. I'm afraid the pilot associations may be shooting themselves in the foot in trying to encourage more flyers by saving a few bucks only to have [general aviation] receive more criticism if the result is an increase in accident rates.

James Edwards, MD
Pilot and senior AME
LaPorte, Ind.

Dear Dr. Edwards,

Thank you for your letter. We appreciate your suggestions regarding medical evaluation for sport pilots. During the rulemaking process, the FAA considered various options regarding airman medical qualification of sport pilots. After extensive internal debate, it was concluded that the alternative of a current and valid U.S. driver's license or a valid airman medical certificate would be acceptable. This was proposed to the public and, of nearly 5,000 comments received to the Notice of Proposed Rulemaking, 240 addressed the medical qualification issue. Of these, 171 supported the proposal while 14 opposed it. The remaining commenters posed questions or offered alternatives either not viable or already considered.

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Sport Pilot Remarks

(Sport Pilot Rule Takes Off, by Judi Citrenbaum, Federal Air Surgeon's Medical Bulletin, Vol. 42, No. 3, p. 1.)

Dear Editor,

Regarding Sport Pilot rule...this is a great example of "GovernmentEse..."

Basically, the article is confusing, the editorial on this issue by Dr. Jordan isn't much better. If I understand the article, ANYBODY with a driver's license can fly a sport aircraft and we are relying on their sense of honesty to go get a FAA medical if they have a medical problem?

If our Government decides to re-write the tax laws, please excuse yourself(s) from this committee...

Don Hodges, MD
Samta Criz, Calif.

Dear Dr. Hodges,

Thank you for your letter. We regret that you found the article confusing. Basically, to exercise sport pilot privileges you must hold either a current and valid U.S. driver's license or a valid airman medical certificate. If you have applied for or held an airman medical certificate, you may use a current and valid U.S. driver's license as medical qualification to exercise sport pilot privileges only if the FAA:

- found you eligible for the issuance of at least a third-class medical certificate at the time of your most recent application;
- has not suspended or revoked your most recently issued airman medical certificate;
- has not withdrawn your most recent Authorization for a special issuance medical certificate.

If the latter provisions apply, the Aerospace Medical Certification Division or a Regional Flight Surgeon will determine what must be done to obtain a favorable decision with respect to at least third-class airman medical certification.

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You are encouraged to take advantage of the forum to discuss important issues pertaining to airman medical certification. Let us hear from you.

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Prostate Cancer

Abstract

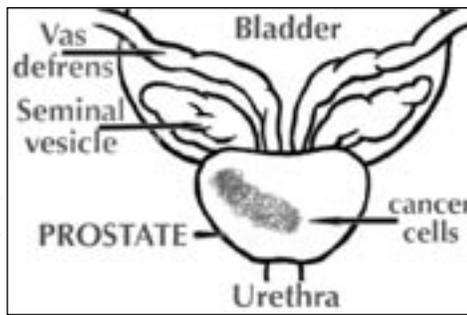
Prostate cancer is the most common malignancy in American men and second only to lung cancer in deaths. The American Cancer Society estimates that there will be about 232,090 new cases of prostate cancer in the United States in 2005, and about 30,350 men will die of this disease. (1). Over the past 15 years, research has expanded our knowledge of this cancer, its risk factors, treatments, and the potential screening tools. Yet, there is no clear consensus of how to deal with every man who comes in for aeromedical certification. No man is the same when it comes to prostate cancer, how to screen for it, and how to treat it. It is the responsibility of the aviation medical examiner to evaluate the unique aspects of every case for aeromedical implications.

Case Study

TM WAS A 67-YEAR-OLD, moderately overweight, but otherwise healthy male, who was found by his primary care physician to have a prostate-specific antigen (PSA) level of 4.9 ng/ml in July of 2001. He held a 3rd-class medical certificate and had more than 800 hours of flying time. He was referred to a local urologist who performed a transrectal ultrasound with guided biopsies of the prostate. Ten biopsies were obtained, and one revealed a small focus of Gleason score 6 adenocarcinoma. Although the patient was unlikely to have metastases, the urologist ordered both a bone scan and CT scan of the abdomen and pelvis. These tests did not reveal metastatic disease. He had no surgical history and had no cardiac or respiratory complaints.

His physical examination was unremarkable. On digital rectal examination, the prostate was approximately 30 g, mobile and non-tender. There were no nodules. His clinical stage was determined to be T1c.

After a lengthy discussion with his urologist regarding the treatment options, it was decided that it might be worthwhile performing another transrectal ultrasound with a guided set of



Case Report

By Major Scott A. McLeod, MD, MPH

biopsies to gain a better understanding of the extent of his malignancy. TM consented and ten biopsies were obtained. Again, no malignancy was identified. Watchful waiting was selected as the treatment. Six months later, his PSA was 4.6 ng/ml and his DRE was normal. He was seen by his local AME in December of 2001 with the results of all his investigations, the most recent PSA, and a letter from the urologist summarizing the case with a clear description of the diagnosis, stage, and Gleason grade. His case was deferred by the AME to the FAA. In February of 2002, he received a special issuance for a 3rd-class certificate and an AME-assisted special issuance (AASI). He has had PSAs done every year since then, with all results being between 4.5 and 5.1 ng/ml; annual DREs have been normal. He currently holds his 3rd-class certificate and is still actively flying.

Screening

To date, prostate cancer screening has not proven to improve a man's outcome in large, randomized, controlled studies. Currently, the American Cancer Society and the American Urologic Society have recommended that the PSA and digital

Continued on page 9

Major (Dr.) Scott McLeod is a board-certified family physician, flight surgeon, and is currently a resident in the USAF School of Aerospace Medicine. He wrote this case report while rotating at the Civil Aerospace Medical Institute.

Risk Factors for Prostate Cancer

The cause of prostate cancer is unknown, but epidemiologic studies have identified several risk factors: age, family history, race, and diet.

Age. The incidence of prostate cancer goes up with age. Studies based on autopsy results have reported that 30% of men in their fifties have prostate cancer, and 60% of men in their eighties have prostate cancer (2,4).

Family history. Having a young family member develop prostate cancer appears to increase an individual's risk of also developing prostate cancer. A study by Carter and associates in 1992 showed that 9% of all cases of prostate cancer had a familial link, but 43% of cancers in men under 55 had a family history (3). The risk of developing prostate cancer is greater if there are two brothers with cancer at an age of less than 55 or a cancer present in each of three generations in either the maternal or paternal lineage.

Race. Race is a significant factor associated with prostate cancer. The relative risk of prostate cancer is 60% greater in African American men than in their white counterparts, and they have a 60-fold higher incidence than men in China (1). The incidence of prostate cancer is 43 times greater in Japanese Americans, compared with native Japanese men, and this appears to occur after only one generation.

Diet. The increased relative risk related to a high-fat diet and the consumption of red meat has been reported to be 1.5 and 2.0, respectively.

Prostate Cancer from page 8

rectal exam be used as a screening tool in all men with a life expectancy of 10 years or greater, starting at the age of 50 for the general population, age 45 for high risk men, and age 40 if there is a strong family history of prostate cancer at a young age. Other groups, like the American College of Physicians and the U.S. Prevention Services Task Force, do not believe screening with PSA and DRE is of value without large, randomized trials. It is recommended to provide the pros and cons to patients and come to unique conclusions based on the individual's risks, needs, and desires.

The most common test ordered for prostate cancer screening is the PSA. It was recognized early that there was a significant overlap in PSA levels with prostate cancer and benign prostatic hypertrophy, so PSA was not considered a great screening tool. Other tests, including fractionation of the PSA into free and complex PSA, human glandular kallikrein (hK2), pro-PSA, age specific PSA, PSA density, and race specific PSA, have been looked at as potentials for increasing the positive predictive value of prostate cancer screening tools (4). By having different upper-acceptable levels for different age groups, the specificity of the test is better in later stages of life, and the sensitivity is better for men under the age of 50 (5).

Determining the ratio of the total PSA to the total prostate gland volume helps account for the fact that PSA increases more gram-for-gram in cancer than in BPH. The difficulty with this test has been getting an accurate prostate volume from trans-rectal ultrasound (5).

Serial PSA testing, or PSA velocity, can aid in identifying cancers, as opposed to hypertrophy. Carter and associates in 1992 showed that a PSA velocity of greater than 75 ng/ml over one year was predictive of the presence of cancer (6). The specificity increased to 90% with a PSA velocity of 75 ng/l over one year, compared with 60% for a single PSA value.

Complex (bound) and free PSA have been investigated extensively as a way of increasing the positive predictive value of the PSA. The percentage of free PSA goes

down with prostate cancer, compared with BPH. Using the fPSA/tPSA ratio in conjunction with age-specific PSA, Catalona and his associates demonstrated a reduced biopsy rate of 18%. (7).

Human glandular kallikrein (hK2) is a protein used to cleave PSA from its precursor Pro-PSA. HK2 has proven to be marker for prostate cancer, with a better sensitivity and specificity than the fPSA/tPSA ratio. Unlike PSA, it was also found to be predictive of the pathologic stage of the cancer at the time of screening (5).

Diagnosis, Stage, and Grade

Once a PSA is found to be elevated, the next step involves trans-rectal ultrasound-guided biopsy of the prostate. This is done by collecting 10-12 samples from the palpable lump and/or from sites at the base, middle, and apex of the prostate.

To choose the most appropriate type of management for a particular patient, the prostate tumor is assigned a stage. The tumor, nodes, metastasis (TNM) system is used to stage the tumor after getting a bone scan, pelvic CT, and possibly a pelvic lymph node dissection. A T1 tumor would be a clinically unapparent tumor, not palpable or visible by imaging; a T4 tumor would be a fixed prostate invading adjacent structures other than the seminal vesicles.

Histologic grading of prostate cancer is an important part of assessing the prognosis of the disease. Accurate grading of prostate cancer can help predict the behavior and aggressiveness of the disease. The Gleason system identifies five levels of increasing disease aggressiveness, with Grade 1 being the least aggressive and Grade 5 being the most aggressive cancer. Most prostatic cancers are heterogeneous, and so the two most prominent grades are added together to produce the Gleason score. Thus, Gleason scores above 7 are associated with a risk of more rapid disease progression, increased potential for metastasis, and decreased survival.

Treatment

The treatment options for prostate cancer consist of watchful waiting, radical prostatectomy, external beam radiotherapy, radioactive seed implants, cryotherapy, and neoadjuvant androgen deprivation therapy. For advanced-stage

cancer, therapy must be more aggressive. For local isolated disease, there has been great debate between watchful waiting, radical prostatectomy, and external beam radiation. Recent improvements in surgical technique have decreased the incidence of complications such as incontinence and loss of potency, but few studies have shown a dramatic improvement in long-term survival. There is no one correct answer for every patient, and all treatments must be tailored to the individual's unique circumstances.

The use of PSA testing as a mode of following patients post-treatment or during the watchful waiting phase has proven to be a successful way of actively monitoring for disease recurrence.

Aeromedical disposition

A pilot with a malignant tumor is ineligible for a medical certification under Title 14 of the Code of Federal Regulations, sections 67.113(b), 67.213(b), and 67.313(b). However, 14 CFR part 67.401 provides authority for a special issuance medical certificate.

All initial cases of a pilot being diagnosed with prostate cancer must be deferred to the FAA Aerospace Medical Certification Division (AMCD) for a decision. A current status report and pertinent medical reports (staging, PSA, metastatic workup, and operative report, if applicable, and treatment) must be forwarded for evaluation. Pilots with local disease confined to the prostate are often issued a special issuance medical certificate. The AMCD has accepted all types of treatment: radical prostatectomy, external beam radiation with seed implantation, hormonal therapy, and, yes — even watchful waiting. For watchful waiting, they require the airman to provide a bone scan to demonstrate that there isn't any spread beyond the confines of the gland. AMCD now allows AME-Assisted Authorization for Special Issuance for all classes of medical. The airman is required to bring follow-up evaluations to the AME every month. The requirements are a status report and current PSA level. The AME should defer to the AMCD or region if the PSA rises at a rate greater than 0.75ng/ml per year, a new treatment is initiated or there is any evidence of metastasis.

Continued on page 12

Traumatic Subdural Hematoma and Medical Certification

Abstract

Traumatic closed-head injury and subsequent subdural hematoma carries a high risk of post-traumatic seizure(s). This is particularly important to the airman, as sudden incapacitation due to seizure carries grave consequences if it occurs during aircraft operation.

History

In June 2003, a 74-year-old, 3rd-class pilot with 3400 flight hours presented to his AME to renew his 3rd-class medical certificate. Upon review of the changes in medical history since his last examination, the airman reveals that six months earlier he had suffered a fall from a 10-foot scaffolding. He sustained a cervical spine fracture, now healed. He had no neurological sequelae. The AME deferred the decision for recertification to the Aerospace Medical Certification Division for evaluation.

The airman's hospital records revealed he had suffered the fall while building his own house. He had a questionable loss of consciousness, according to first responders, but definitely had mild lethargy, which cleared over the course of his visit to the local emergency department. He was evaluated by computed tomography (CT) and found to have a small subdural hematoma. The scan also revealed fractures of the fifth and sixth vertebrae, with no involvement of the spinal cord. He was transferred to a neurosurgical hospital for further care. He was alert at transfer without further alteration of consciousness (AOC), and his total AOC was estimated to be greater than one hour but less than 24 hours. He appeared to show some retrograde amnesia, initially not recalling the event. The time course of his amnesia is unclear but probably concurrent with the AOC. Angiography by CT was performed, which ruled out vertebral artery involvement. He was discharged 36 hours later in stable condition. It was decided to follow him conservatively.



Case Report

By Mical J. Kupke, MD, MPH

Medical History. Non-contributory. He was very active and healthy.

Medications. None.

Social History. The airman was noted to be right-handed, quite active, and in otherwise excellent health. He denied use of alcohol or tobacco.

Family History. Non-contributory.

Physical Exam. At the time of his emergency department assessment, the airman appeared mildly lethargic. He showed a 16cm jagged scar to the posterior occipital scalp without obvious foreign bodies. Pupils were equal and reactive. Tympanic membranes were clear bilaterally. His neck was tender to palpation, without obvious crepitus or deformity. No cervical ROM testing was attempted. His heart was regular in rate and rhythm. His lungs were clear without obvious deformity to the chest wall. The abdomen was soft, round, without guarding, rigidity, or rebound. His extremities were without trauma. The airman was able to answer simple questions but could not recall the accident.

Aeromedical Disposition

It is important to classify any closed-head injury as mild, moderate, or severe, since the classification will help to determine the medical course of action necessary to recertify the Airman. According to the *Guide for Aviation Medical Examiners* (1), mild closed-head injury is defined as loss or alteration of consciousness and/or post-traumatic amnesia of less than 1 hour. Moderate closed-head injury is classified as sustaining LOC or AOC and/or post-traumatic amnesia longer than 1 hour but less than 24. Severe closed-head injury is classified as LOC or AOC and/or post-traumatic amnesia of 24 hours or more.

Any mild or moderate head injury associated with an intracranial hematoma—subdural, epidural, or intracerebral—requires a minimum of 2 years of observation, off medications with freedom from seizures (2). A severe head injury requires 5 years free of seizures while off medications for at least the last 2 years.

Aeromedical Concerns. Head injury does not necessarily include brain injury. If your aviator experiences either a disturbance (or loss) of consciousness, neurological deficits, or abnormal brain imaging, it is likely that brain injury has occurred. The Glasgow Coma Scale and duration of PTA are indicators of traumatic brain injury (6). In the aeromedical world, we must consider three post-closed-head injury issues: 1) permanent neurologic deficit, 2) post-traumatic syndrome, and 3) risk for sudden incapacitation, e.g., seizures or post-traumatic epilepsy. Permanent injury may manifest in several ways and may include impaired motor, cognitive, or language function. Post-traumatic syndrome is a variety of symptoms, including impaired concentration and behavioral changes, irritability, vertigo, and more. Follow-up is necessary with the airman and possibly family members and aircrew to determine if such problems are occurring (5).

Sudden incapacitation, primarily by seizure, is the main concern when considering returning aircrew with a history

Dr. Kupke is a resident in aerospace medicine at the USAF School of Aerospace Medicine, Brooks City-Base, Texas. She wrote this case report while rotating at the Civil Aerospace Medical Institute.

Continued ➤

SUBDURAL HEMATOMA

Etiology. The most commonly accepted mechanism of injury is a blow to the head. It is suspected this happens because the brain moves freely in the cerebral spinal fluid and the venous sinuses are fixed within the skull. Therefore, when trauma occurs, displacement of the brain can tear these vessels, causing intracranial bleeding. Elderly persons are more prone to such displacement injury due to some level of brain atrophy, giving more space for brain movement (4).

A subdural hematoma can occur in the potential space between the inner surface of the dura mater and the outer arachnoid layer of the leptomeninges. The veins that traverse the subdural space and empty into the superior sagittal sinus are the bridging veins and are particularly prone to tearing. About 10% of subdural hematomas are bilateral (4). Sudden acceleration-deceleration injuries are considered the most important in traumatic brain injury. As powerful inertial forces occur, shearing may cause disruption of axons and small blood vessels (3).

Clinical Presentation. Typical neurological signs are due to pressure exerted on the adjacent brain. Many times a dilated pupil will be found on

the same side of the head as the lesion. Often, neurologic symptoms and signs are non-focal, including headache and confusion (4). Signs of weakness, numbness, inability to speak, slurred speech, or abnormal level of consciousness should prompt a brain imaging study such as a CT scan or MRI (12). Level of consciousness may also alternate between stupor and lucidity (9).

Diagnosis. Definitive diagnosis of SDH is by imaging (9). There may be local percussion tenderness to the site.

Treatment. A subdural hematoma can be an emergency condition. Treatment goals include lifesaving measures, control of symptoms, minimizing or preventing permanent brain damage, and possibly breathing and/or circulatory support. Medications may be used, given the symptoms and the extent of brain damage. Diuretics may reduce swelling. Anticonvulsants can assist in seizure control. Emergency surgery may be warranted to reduce intracranial pressure. Typically, a burr hole is drilled in the skull to allow drainage of the hematoma. Large hematomas or solid blood clots may require craniotomy (9).

Typical treatment for an acute subdural hematoma is surgical

decompression, followed by active intensive care treatment (10).

Prognosis. This varies widely, depending on the mechanism of head injury, the size of the subdural hematoma, and how rapidly treatment is begun. Acute subdural hematomas have high rates of death and injury. Subacute and chronic subdural hematomas generally have good outcomes, with symptoms going away after drainage of the blood collection. Unfortunately, seizure frequency is high following a subdural hematoma (9). Although these can be controlled with medication, seizures present a much more grave problem for the airman, as noted above.

Slow, progressive neurological deterioration may occur with rebleeding. Some important sequelae include post-traumatic epilepsy, brain tumors, infections, and psychiatric disorders, as well as post-traumatic dementia due to repeated head trauma (4). Some research shows evidence of ischemic brain damage as sequelae to acute subdural hematomas; however, most of the ischemic brain damage resulted from arterial compression due to herniation of the brain and brain shifting and not due to hematoma effect on the underlying brain tissue (11).

of closed-head injury to flying status. Immediate or impact seizures are typically not considered a risk factor for future seizures. However, early-onset seizures, happening one to two weeks post-event, suggest scar formation or gliosis, and are correlated with risk for future seizures. Late-onset seizures typically occur two or more weeks post-event and may also be due to scar formation; however, it may take several years for the first seizure to manifest (6). The main question is: What seizure-free interval is sufficient following mild, moderate, and severe closed-head injury to consider the risk of seizure low enough? The standardized incidence ratio of seizure (SIR) for mild closed-head injury is 1.5 overall, with no increase over expected number after 5 years. The SIR for moderate closed head injury is 2.9 overall and 6.7 for the

first year following injury. The SIR for severe closed-head injury is 17 overall, 95 for the first year (7).

Most neurological recovery occurs in 6-12 months. In 1-2 years, expect further recovery but to a lesser extent. Fifty percent of individuals in whom seizures will occur will experience it within the first 6 months following the brain injury, 75% within 1 year, 90% within 2 years, and 97% within 3 years (6).

Case Outcome. This airman had a "small" subdural hematoma. His Glasgow Coma Scale was estimated to be 14 (15 is the highest score) upon arrival to the ED. As his only signs/symptoms following injury were mild alteration of consciousness, which resolved in a few hours. Headaches persisted for several months following injury but did finally remit. This airman's pupils

were not dilated upon presentation, and CT scan showed no evidence of brain herniation. He had no focal neurological deficits. Given the mild nature of his acute subdural hematoma, this airman was spared surgical decompression. He could be followed conservatively. His subdural hematoma had cleared by follow-up CT two months after his fall. He continued to have no neurological deficits.

The airman was given a general denial, since, at a minimum, he must have a 2-year seizure-free observation period before certification may be re-considered. Of note, when an AME performs a flight physical, it is important to obtain appropriate history from the airman. In this case, it was not the cervical fractures

Continued on page 12

Pre-Diabetes Summary Table for Initial Applications⁸

HbA1c Value	Action	Can AME Issue Certificate?
HbA1c < 6 On no medication	Warn, with no further evaluation needed	Yes
HbA1c < 6 On medication	Send AMCD annual current status per AMCD specifications, fasting blood sugar and HbA1c	No, this requires written or verbal permission from AMCD
HbA1c 6 to 8.9 On no medication	Okay to certify if the AME is satisfied with the airman's current status from the treating physician	Yes
HbA1c 6 to 8.9 On medication	Send AMCD annual current status per AMCD specifications, fasting blood sugar and HbA1c	No, this requires written or verbal permission from AMCD
HbA1c ≥ 9.0 (type II diabetes)	Send AMCD a current status, HbA1c, fasting blood glucose and other tests deemed necessary by the treating physician	No, defer to AMCD

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that were the major issue. The fact that this airman suffered a moderate head injury (some would consider *major*) with a subdural hematoma is worrisome. Given the airman's otherwise excellent health, the prognosis is better than if he were not in good health. However, the airman is 74 and is at greater risk for sequelae, particularly seizure activity, given the above statistics. It would be unsafe to allow him to fly before the minimal 2-year observation period.

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DOT Secretary Announces New Laser Warning and Reporting System

Measures to Safeguard Pilots and Passengers, Support Timely Enforcement

By Robert Johnson

U.S. Secretary of Transportation Norman Y. Mineta announced new measures designed to alert and better prepare pilots to handle incidents of lasers being shined at their aircraft and to speed notification about such crimes to law enforcement investigators. The measures are designed to respond to a recent increase in the number of reported laser incidents.

"Shining these lasers at an airplane is not a harmless prank. It is stupid and dangerous," said Mr. Mineta. "You are putting other people at risk, and law enforcement authorities are going to seek you out, and if they catch you, they are going to prosecute you."

The measures, which are outlined in an Advisory Circular from the Federal Aviation Administration, recommends that pilots immediately report any unauthorized laser events to air traffic controllers. As soon as the FAA get these reports, they will notify appropriate law enforcement and security agencies through the Domestic Events Network. The changes will provide police with more timely and detailed information to help them identify and prosecute those who are shining lasers at planes.

The new measures also include requirements that controllers immediately notify pilots about the laser events. If pilots have a laser pointed at them, the circular strongly advises aircrew to avoid direct eye contact, given the health and safety risks posed by some types of lasers.

The Department also will be working with the Food and Drug Administration, the Consumer Product Safety Commission, and others to improve product labeling and better educate the public.

"We are treating lasers in the cockpit as a serious aviation safety matter," the Secretary said. "We must act now before

someone's reckless actions lead to a terrible and tragic incident."

The Secretary announced the new measures because of a recent spike in the number of incidents of laser being shined at airplanes. Since December 23, 2004, there have been 31 reported

'We are treating lasers in the cockpit as a serious aviation safety matter...'

lasers incidents involving aircraft, seven one weekend alone. Since 1990, there have been more than 400 similar incidents.

The Secretary noted that there are no indications that the people shining lasers at planes are anything other than careless individuals who are using commercially available lasers in a manner that is reckless and illegal. "There is no specific or credible intelligence that would indicate that these laser incidents are connected to terrorists."

FAA research has shown that laser illuminations can temporarily disorient or disable a pilot during critical stages of flight such as landing or take-off, and in some cases, may cause permanent damage. However, given the relatively small number of incidents, there is no need to require new equipment for aircraft and aircrew at this time, the Secretary said.

The Secretary announced the new measures during a simulator demonstration of the dangers posed to pilots from shining lasers into cockpits. The demonstration was held at the Civil Aerospace Medical Institute in Oklahoma City, OK, where the FAA conducts research on a range of aviation-related health and safety issues. The Institute will continue to conduct research to determine if there are technological solutions for enhancing aircrew safety during laser events, the Secretary added.

Secretary Mineta's press conference was held at the Civil Aerospace Medical Institute on January 12, 2005 and attracted wide media interest. ➔

QUICK FIX from page 1

listed for an AME was truly the AME's primary specialty. We have modified our application form to permit prospective AMEs to clearly indicate their primary and any secondary specialties, but we need your help to ensure existing AME primary and secondary specialty codes are accurate.

Solution

We ask all AMEs to carefully review the specialties data listed for them in the on-line AME Directory. The directory can be found on our Web site at: www.cami.jccbi.gov. We also suggest that all AMEs carefully review their annual performance reports for any inaccuracies in the information displayed there. Whenever there is a need to correct any of our demographic information, simply E-mail your corrected information to deanie.davis@faa.gov. Just tell Ms. Davis which discipline you want listed as your primary specialty (only one is allowed) and any others you may want listed as secondary areas of specialty. Please note, however, that Ms. Davis cannot assist you with questions about your performance metrics – these need to be worked through your Regional Flight Surgeon's office.

Please do not be concerned that your AME numbers no longer have the dash followed by another number. These have never been part of your actual AME number and are not needed on any documents or correspondence with us; you only need to use your five-digit AME number in the future.

Incidentally, all of the "old heads" out there with five-digit numbers beginning with zero need to use the zero, since using a four-digit number without the zero causes problems when transmitting examinations to us.

Thank you for your patience with us. I sincerely hope this has not caused too much inconvenience, but this expanded list of specialties was needed as a service to airmen seeking FAA-savvy specialists to advise them about their medical problems. ➔

Dr. Jones manages CAMI's Aerospace Medical Education Division.

In Memoriam: Robert Smallwood Poole, MD

February 18, 1928 –
December 14, 2004



Robert S. Poole, MD, died on December 14th after a long battle against multiple myeloma. Dr. Poole was a senior flight surgeon and advisor to the Federal Air Surgeon. Though he had been ill for several years, he continued to work for the FAA in Washington, D.C., until his death.

Dr. Poole graduated from The George Washington University where he received his bachelor's degree in 1950 and his medical degree in 1953.

Dr. Poole was very well known and a highly regarded physician in private practice in the Washington, D.C., area for many years before joining the FAA in 1990. While working in private practice, he is credited with launching a helicopter air ambulance service at the Washington Hospital Center that was initially staffed and equipped on a voluntary basis. This service eventually evolved into what is known today as the MedSTAR Transport air ambulance service. While in private practice, Dr. Poole also served as a senior aviation medical examiner and consultant to the FAA. Upon leaving private practice in 1988, he was employed as a flight surgeon by American Airlines in New York, N.Y.

Before serving as a senior advisor to the Federal Air Surgeon, Dr. Poole managed the Medical Specialties Division in the Office of Aerospace Medicine. Dr. Poole was also a veteran of the military. He served in the United States Air Force (where he learned to fly) and later with the U.S. Air Force Reserve. He was a colonel at the time of his separation. He was activated for *Operation Desert Storm* and served at Andrews Air Force Base.

Dr. Poole was an accomplished pilot who owned and flew a Cessna Model 337 Skymaster. He was also an A&P certified mechanic. Dr. Poole was a past-president of the Civil Aviation Medical Association and an active member of the Coast Guard Auxiliary.

Dr. Poole was a compassionate and caring friend and physician. He was also well known for his sense of humor. A friendly and colorful member of the FAA family, Bob will be missed by all of us. He is survived by his wife, Kathleen; sons Robert, Jr., Allan, and Douglas; a daughter, Nancy; and five grandchildren.

—Mark Adams

OAM NEWS

Office of Aerospace Medicine



CAMI EMPLOYEE OF YEAR CHOSEN

Kristine Burge (shown here with CAMI Director **Melchor J. Antuñano**), a Legal Instrument Examiner in the Aerospace Medical Certification Division, was chosen as the 2004 CAMI Employee of the year. She was nominated for having such traits as “helpful attitude, dependable, strong work ethic that exemplifies the type of professional that the FAA needs...willingness to take on multiple extra projects...courteous behavior towards customers—airmen, AMEs, and advocacy groups...mentor...helpful attitude toward her supervisor and co-workers...” Ms. Burge has worked for the FAA for eight years.

Each year, employees at the Institute nominate deserving fellow workers for the annual award. An employee committee reviews the nominations and selects the winner.



HALL OF FAME

William E. Collins, PhD, retired CAMI director, was inducted into the Oklahoma Aviation and Space Hall of Fame during ceremonies conducted recently at the Omniplex in Oklahoma City. Dr. Collins was cited for his scientific/administrative achievements in aviation medicine and aviation safety during a 40-year career that spanned 1961 to 2001 at the Civil Aerospace Medical Institute, where he served as director from 1989-2001. Sharing the occasion with Dr. Collins (2nd from left, wearing medal) were (left) **Melchor J. Antuñano, MD**, current director of CAMI and president of the Aerospace Medical Association (AsMA), **David J. Schroeder, PhD**, manager of CAMI's Human Factors Research Division and immediate past-president of AsMA, and (far right), **J. Robert Dille, MD**, Dr. Collins' predecessor as CAMI's director and 1992-93 AsMA president. Dr. Antuñano also participated in the ceremonies as an invited presenter.

ADMINISTRATOR'S AWARDS PRESENTED

During the annual Federal Aviation Administration Employee Appreciation Day Celebration, two Office of Aerospace Medicine senior staff members were honored for their contributions. Dr. **Jon L. Jordan**, Federal Air Surgeon, received a Meritorious Achievement Award (silver medal) for his accomplishments during the year. Dr. **Bill Salazar**, Southwest Regional Flight



Dr. Salazar

Surgeon, received the War on Terrorism Ribbon for his service in the U.S. Naval Reserve during *Operation Iraqi Freedom*. [The agency was unable to identify and recognize all other individuals who had served in the military during the war on terrorism; see sidebar below.]



Five teams and 25 individuals were recognized to honor employees who have been chosen to receive the Secretary of Transportation awards. Presiding at the ceremony, FAA Administrator **Marion Blakey** noted that the honorees were perfect examples of effective leadership. "You live the organizational excellence model of performance. You're the people who are making it happen."

From December 2004 FAA Intercom

★ OTHERS FROM THE OFFICE OF AEROSPACE MEDICINE WHO HAVE SERVED OR ARE CURRENTLY SERVING IN THE MILITARY ★

★ LtCol **Henry Boren** (AAM-300)

Squadron Senior Flight Surgeon
OK Air National Guard, 137th Airlift Wing
Was deployed in Saudi Arabia

★ COL **Larry Wilson**, MC, SFS (AAM-300)

HHC, 1-108th AVN, Task Force Warrior
Served in *Operation Joint Forge*, Eagle Base

★ MSgt. **David Dyer** (AAM-600)

105th IMPAD

Was deployed in Afghanistan, currently on active duty

★ Major **Raymond E. King**, USAF, BSC (AAM-500)

Life Skills Support Center, 72nd Medical Group
Backfilling for Tinker AFB personnel
deployed to Afghanistan

★ Tech Sgt. **Jerry McDown** (AAM-600)

137th Aeroport Squadron
Will Rogers Air National Guard Base
Reserve duty

2004 AME Statistics and Published Research

In FY-2004, nearly 5,000 aviation medical examiners performed 425,760 physical examinations on applicants for medical certification. Of these exams, only 2.1% contained errors, an "outstanding performance," according to Dr. **Richard Jones**, manager of the Aerospace Medical Education Division. Training attendance at the various seminars and online courses included:

- 1,105 physicians attended basic and recurrent training seminars
- 447 completed Medical Certification and Procedures Training (MCPT) through distance learning
- 439 took the Multimedia Aviation Medical Examiner Refresher Course (MAMERC) by computer
- 291 took the Clinical Aerospace Physiology Review for AMEs (CAPAME) course on-line

Research Activity



Much research to learn even more about aviation safety was done. Here's just one example of the research performed at the Civil Aerospace Medical Institute (CAMI).

To learn about the effect of aircraft exit height, as well as flotation equipment on the speed and safety of water evacuations, CAMI's Cabin Safety Research Team conducted a series of tests to evaluate evacuation flow rates into water from simulated Type A (42-inch wide) and Type 1 (24-inches wide) exits. The tests also evaluated exit heights of 9 inches, 2 feet, 4 feet, and 6 feet above water level with subjects using flotation seat cushions, life preservers inflated prior to water entry, and life preservers inflated after water entry.

These tests suggest that in the best conditions, passenger flow rates into water are much like those onto land. However, the platform height effects suggest that airplane attitude in the water may be important, as is exit size. The use of flotation seat cushions as flotation aids should be a last resort.

Read more about the results of these tests by going to the CAMI Web site and reading Office of Aerospace Medicine technical report 2004-12, *Simulated Evacuations Into Water* at URL: www.cami.jccbi.gov/aam-400A/Abstracts/Tech_Rep.htm.

Researchers at the Institute published 24 technical reports last year on a wide variety of subjects, all of which are available at the Web site referenced above. A milestone is about to be reached as CAMI researchers will soon publish the 1,000th research report since 1961.



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